

Docket No.: 043888-0373



PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of : Customer Number: 20277  
Hajime MURAKAMI : Confirmation Number: 9619  
Application No.: 10/533,951 : Tech Center Art Unit: 1745  
Filed: May 04, 2005 : Examiner: CHU, Helen O.

For: A POSITIVE ELECTRODE CURRENT COLLECTOR FOR A MANGANESE DRY BATTERY AND A MANGANESE DRY BATTERY USING THE SAME

**TRANSMITTAL OF APPEAL BRIEF**

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith is Appellant's Appeal Brief in support of the Notice of Appeal filed June 8, 2007. Please charge the Appeal Brief fee of \$500.00 to Deposit Account 500417.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due under 37 C.F.R. §§ 1.17 and 41.20, and in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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**APPEAL BRIEF**

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is submitted in support of the Notice of Appeal filed June 8, 2007, wherein Appellant appeals from the Primary Examiner's rejection of claims 1-5.

**Real Party In Interest**

This application is assigned to Matsushita Electric Industrial Co., LTD. by assignment recorded on May 4, 2005, at Reel 016932, Frame 0529.

**Related Appeals and Interferences**

Appellants are unaware of any related appeals and interferences.

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Status of Claims

Claims 1-5 are pending in this application. Claims 1-5 have been finally rejected. It is from the final rejection of claims 1-5 that this appeal is taken.

Status of Amendments

No amendment has been filed subsequent to the imposition of the final Office Action dated January 8, 2007.

Summary of Claimed Subject Matter

An embodiment of the present invention is a positive electrode current collector for a manganese dry battery comprising a carbon rod and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in the carbon rod, wherein the amount of a hydrocarbon compound having a molecular weight of not greater than 310 in the paraffin wax is not greater than 0.5 wt% (see page 3, lines 14 to 21 of the written description).

Another embodiment of the present invention is a positive electrode current collector for a manganese dry battery of the present invention comprising a carbon rod and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in the carbon rod, wherein the amount of a hydrocarbon compound having a molecular weight of not greater than 310 in the paraffin wax is not greater than 0.5 wt%. The carbon rod has a density of 1.50 to 1.75 g/cm<sup>3</sup> (see page 3, lines 14 to 21; and page 3, line 25 to page 4, line 1 of the written description).

In other embodiments of the present invention, the amount of the hydrocarbon compound having a molecular weight of not greater than 310 in the paraffin is measured by gas chromatography (see page 3, lines 22 to 24 of the written description). In other embodiments of the present invention, a

manganese dry battery comprising the aforesaid positive electrode current collector is provided (see page 4, lines 4 to 6). In certain other embodiments of the present invention, the manganese dry battery comprises a sealing member having an aperture for fitting the positive electrode current collector therein, and polybutene is placed as a sealant in the fitting portion between the positive electrode current collector and the sealing member (see page 4, lines 7 to 12).

The present invention addresses and solves problems attendant upon the design and manufacture of improved manganese dry batteries. The present invention provides a positive electrode current collector for a manganese dry battery including a carbon rod with a low density yet with good retention of the sealing property of the battery during high temperature storage. Another object of the present invention is to provide a manganese dry battery having improved high temperature storage characteristics by using the above positive electrode current collector (see page 3, lines 5 to 13 of the written description).

**Grounds of Rejection To Be Reviewed By Appeal**

1. Claims 1, 2, and 4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki (JP 3-297063).

2. Claim 3 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki in view of Yukifumi et al. (JP 7-272702).

3. Claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nobuaki in view of Yukifumi et al. and further in view of Kenichi et al. (JP 5-290820).

Argument

1 Rejection under 35 U.S.C. § 103(a) over JP 3-297063

Claims 1, 2, and 4

The Examiner's Position:

The Examiner contends that Nobuaki discloses a dipping treatment for a carbon rod in a manganese dry cell and that Nobuaki teaches paraffin wax with a molecular weight of 300 to 500 or a micro-wax consisting of isoparaffin and cycloparaffin with a molecular weight of 35 to 60.

Acknowledging that Nobuaki does not disclose that the paraffin wax contains hydrocarbon compounds having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.%, the Examiner alleged that Nobuaki recognizes that variations in the weight percentage of the lower molecular weight of hydrocarbons will vary the viscosity of the wax and in turn effect impregnation of the wax. Thus, the Examiner concluded that the claimed value would have been obvious because discovering the optimum value only involves routine skill in the art.

Appellant's Position:

Nobuaki does not suggest that the paraffin wax contains hydrocarbon compounds having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.%, as required by claim 1. The Examiner's interpretation of the teachings of Nobuaki is incorrect. There is no support for the Examiner's conclusion that Nobuaki recognizes that variations in the weight percentage of the lower molecular weight of hydrocarbons will vary the viscosity of the wax and in turn effect impregnation of the wax, and that the claimed value would have been obvious.

Furthermore, the Examiner's reference to page 340 Nobuaki (page 6 of the final Office Action) does not relate to the weight percent of hydrocarbon compounds having a molecular weight of not

greater than 310 in paraffin wax. Rather, the weight percent refers to the content of polyolefin resin in the impregnating material. The impregnating material contains paraffin wax and polyolefin resin. Nobuaki is silent about the content of hydrocarbon compounds having a molecular weight of not greater than 310 in paraffin wax.

In addition, the present invention is further distinguishable in view of the **evidence of unexpected results**. As shown in **Table 3** of the present specification (page 12) an **unexpected improvement** in discharge capacity after high temperature storage is obtained when paraffin wax with the claimed molecular weight is impregnated in the carbon rod.

Obviousness can be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Kotzab*, 217 F.3d 1365, 1370 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992); *In re Fine*, F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). There is no suggestion in Nobuaki to modify the positive electrode current collector of Nobuaki so that it contains a paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, as required by claim 1, nor does common sense dictate the Examiner-asserted modification. The Examiner has not provided any evidence that there would be any obvious benefit in making the asserted modification of Nobuaki. See *KSR Int'l Co. v. Teleflex, Inc.*, 500 U.S. \_\_\_\_ (No. 04-1350, April 30, 2007) at 20.

In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to discharge the initial burden by, *inter alia*, making "**clear and particular**" factual findings as to a **specific understanding or specific technological principle** which would have **realistically impelled** one having ordinary skill in the art to modify an applied reference to arrive at the claimed invention based upon facts, -- not

generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab, supra*; *In re Dembiczaik*, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). That burden has not been discharged, as the Examiner has provided no factual basis in Nobuaki to modify Nobuaki so that the paraffin wax contains hydrocarbon compounds having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.%, as required by claim 1.

Apparently, the Examiner has relied on improper hindsight reasoning in reaching the conclusion of obviousness.

The only teaching of a paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in the carbon rod, the paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%, is found in Appellant's disclosure. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must not be based on appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

The motivation for modifying the prior art must be based on facts. Although the Examiner alleged that Nobuaki recognizes that variations in the weight percentage of the lower molecular weight of hydrocarbons will vary the viscosity of the wax and in turn effect impregnation of the wax, the Examiner's conclusion lacks the requisite factual support. The Examiner's retrospective assessment of the claimed invention and use of unsupported conclusory statements are not legally sufficient to generate a case of *prima facie* obviousness. The Examiner is not free to ignore the judicial requirement for facts. To do so is legal error. *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002).

It is noted that the Examiner simply discounted the features of the present invention by asserting that "it would have been obvious to choose the instantly claimed value through process

optimization" and "that discovering the optimum or workable values involve only routine skill in the art" Accordingly, though the Examiner admits Nobuaki does not disclose these features, the Examiner alleged that they would have been obvious based on process optimization. However, it is respectfully submitted that the Examiner's reliance on routine skill in the art to allege obviousness of the claimed features is in legal error. The "process optimization" basis for an obviousness rejection can only be relied upon by the Examiner if the *prior art* first recognizes the modified parameter as a result-effective variable. In the instant case, only Applicant has recognized and considered the importance of the claimed parameter (e.g., amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310), as a result-effective variable, so that the Examiner can not rely on the obviousness-theory of "process optimization" as a basis for asserting obviousness thereof.

As taught in MPEP § 2144.05(II)(B) under the heading "Only Result-Effective Variables Can Be Optimized":

A particular parameter must first *be recognized* as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. (citing *In re Antonie*, 195 USPQ 6 (CCPA 1977)) (emphasis added).

In the instant case, the cited prior art is silent regarding amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310, as achieving a recognized result; so that there is no basis for alleging obviousness thereof based on process optimization. Accordingly, it is respectfully submitted that the claimed features would not have been obvious in view of Nobuaki because the cited prior art does not recognize the claimed parameters as achieving a recognized result.

Specifically, Nobuaki fails to satisfy the legal requirement for the prior art to first recognize the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater

than 310 as a result-effective variable. Namely, Nobuaki is silent as to the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 achieving a recognized result. Accordingly, the cited prior art does not support the Examiner's allegation that the optimum values of the parameter can be characterized as process optimization.

Moreover, the features of the present invention recited in claim 1 provide **new and unexpected results** in relation to improved discharge capacity after high temperature storage obtained when paraffin wax with the claimed molecular weight is impregnated in the carbon rod, as described in the present specification (see Table 3). Only Appellant has recognized and considered the parameter (e.g., the amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310) in relation to discharge performance of manganese dry batteries to achieve the disclosed results described in the present specification. Nobuaki is completely silent as to the improvement in discharge performance achieved by the present invention, and does not enable process optimization of the claimed parameter.

## 2 Rejection under 35 U.S.C. § 103(a) over JP 3-297063 in view of JP 7-272702

### Claim 3

#### The Examiner's Position:

The Examiner averred that Nobuaki substantially discloses the claim elements but does not teach the density of the carbon rod. The Examiner alleged that Yukifumi et al. disclose that a carbon rod of high density is used so that it is hard and cushioning is not a consideration. The Examiner concluded that the claimed carbon rod density would have been obvious because discovering the optimum value only involves routine skill in the art. The Examiner alleged that it is well known that

higher the density, the harder and/or stronger a component would be (see page 7 of the final office action).

Appellant's Position:

The combination of Nobuaki and Yukifumi et al. does not suggest the claimed positive electrode current collector because neither Nobuaki nor Yukifumi et al. suggest paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt% and a carbon rod with a density of 1.50 to 1.75 g/cm<sup>3</sup>, as required by claim 3. There is no suggestion in Nobuaki and Yukifumi et al. to substitute a paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt% and a carbon rod with a density of 1.50 to 1.75 g/cm<sup>3</sup> into the positive electrode current collector of Nobuaki.

The Examiner's hypothesis that the higher the density the stronger and/or harder a material would be is incorrect. For example, lead (Pb) is a very dense material (11.35 g/cm<sup>3</sup>), yet it is a soft and weak metal. Mercury (Hg) (13.59 g/cm<sup>3</sup>) is denser than lead, yet it is a liquid. Therefore, higher density materials are not inherently stronger and/or harder materials.

Claim 3 is further distinguishable over the combination of Nobuaki and Yukifumi et al. because the teaching of "density" in Yukifumi et al. does not relate to the density of the carbon rod used for a positive current collector, rather it relates to a paper material used for a ring-shaped gasket arranged on the bottom of a cylindrical zinc can. Yukifumi et al. is silent about the density of the carbon rod.

The only teaching of a positive electrode current collector comprising a paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt% and a carbon rod with a density of 1.50 to 1.75 g/cm<sup>3</sup>, is found in Appellant's disclosure. However, the teaching or suggestion to make a claimed combination and the

reasonable expectation of success should be found in the prior art, and not based on appellant's disclosure. The motivation for modifying the prior art should come from the prior art and must be based on facts, not hindsight reasoning.

In rejecting a claim under 35 U.S.C. § 103, the Examiner is required to discharge the initial burden by, *inter alia*, making "**clear and particular**" factual findings as to a **specific understanding or specific technological principle** which would have **realistically** impelled one having ordinary skill in the art to modify an applied reference to arrive at the claimed invention based upon facts, -- not generalizations. *Ruiz v. A.B. Chance Co.*, 234 F.3d 654, 57 USPQ2d 1161 (Fed. Cir. 2000); *Ecolochem Inc. v. Southern California Edison, Co.*, 227 F.3d 1361, 56 USPQ2d 1065 (Fed. Cir. 2000); *In re Kotzab, supra*; *In re Dembicza*k, 175 F.3d 994, 50 USPQ2d 1614 (Fed. Cir. 1999). That burden has not been discharged, as the Examiner has provided no factual basis in Nobuaki or Yukifumi et al. for modifying Nobuaki to substitute a paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt% and a carbon rod with a density of 1.50 to 1.75 g/cm<sup>3</sup> into the positive electrode current collector of Nobuaki.

Apparently, the Examiner has relied on improper hindsight reasoning in reaching the conclusion of obviousness.

Although the Examiner alleged that Yukifumi et al. disclose the carbon rod with a density of 1.50 to 1.75 g/cm<sup>3</sup>, the Examiner's conclusion lacks the requisite factual support. The Examiner's retrospective assessment of the claimed invention and use of unsupported conclusory statements are not legally sufficient to generate a case of *prima facie* obviousness. The motivation for modifying the prior art must come from the prior art and must be based on facts. The Examiner is not free to ignore the judicial requirement for **facts**. To do so is legal error. *In re Lee*, 277 F.3d 1338 (Fed. Cir. 2002).

The present claims are further distinguishable over Nobuaki and Yukifumi et al. because Yukifumi et al. do not suggest the **unexpected results**, e.g. - improved discharge capacity after high temperature storage obtained when paraffin wax with the claimed molecular weight is impregnated in the carbon rod, as shown in Table 3 (specification at page 12).

It is noted that the Examiner simply discounted the features of the present invention by asserting that "it would have been obvious to choose the instantly claimed value through process optimization" and "that discovering the optimum or workable values involve only routine skill in the art" However, it is respectfully submitted that the Examiner's reliance on routine skill in the art to allege obviousness of the claimed features is legal error. The "process optimization" basis for an obviousness rejection can only be relied upon by the Examiner if the *prior art* first recognizes the modified parameter as a result-effective variable. In the instant case, only Appellant has recognized and considered the importance of the claimed parameter (e.g., amount of paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 and the carbon rod density), as a result-effective variable, so that the Examiner can not rely on the obviousness-theory of "process optimization" as a basis for asserting obviousness thereof.

3 Rejection under 35 U.S.C. § 103(a) over JP 3-297063 in view of JP 7-272702 and further in view of JP 5-290820

Claim 5

The Examiner's Position:

The Examiner averred that Nobuaki and Yukifumi et al. substantially disclose the claim elements but do not teach the polybutene sealant. The Examiner alleged that Kenichi et al. disclose a polybutene sealant and that it would have been obvious to incorporate a polybutene sealant into the manganese dry cell of Nobuaki and Yukifumi et al. to prevent liquid leakage.

Appellant's Position:

The combination of Nobuaki, Yukifumi et al., and Kenichi et al. do not suggest the claimed manganese dry battery because Kenichi et al. do not cure the deficiencies of Nobuaki and Yukifumi et al. Kenichi et al. do not suggest that the paraffin wax contains hydrocarbon compounds having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt.%, as required by claims 1 and 3. Thus, claim 5 is allowable for at least the same reasons as claims 1 and 3.

Conclusion

Based upon the arguments submitted supra, Appellant respectfully submits that the Examiner's rejections under 35 U.S.C. § 103 are not legally viable. Appellant, therefore, respectfully solicits the Honorable Board to reverse the Examiner's rejections of claims 1, 2, and 4 as obvious, as evidenced by Nobuaki; claim 3 as obvious, as evidenced by Nobuaki in view of Yukifumi et al.; and claim 5 as obvious, as evidenced by Nobuaki in view of Yukifumi et al., and further in view of Kenichi et al.

For all of the foregoing reason, Appellant respectfully submits that the grounds of rejection of the claims on appeal are in error and should be reversed.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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**CLAIMS APPENDIX**

1. A positive electrode current collector for a manganese dry battery comprising: a carbon rod, and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in said carbon rod,

    said paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%.

2. The positive electrode current collector for a manganese dry battery in accordance with claim 1, wherein the amount of said hydrocarbon compound having a molecular weight of not greater than 310 in said paraffin wax is measured by gas chromatography.

3. A positive electrode current collector for a manganese dry battery comprising: a carbon rod, and paraffin wax containing a hydrocarbon compound having a molecular weight of 300 to 500 impregnated in said carbon rod,

    said paraffin wax containing a hydrocarbon compound having a molecular weight of not greater than 310 in an amount of not greater than 0.5 wt%,

    wherein said carbon rod has a density of 1.50 to 1.75 g/cm<sup>3</sup>.

4. A manganese dry battery comprising the positive electrode current collector for a manganese dry battery in accordance with any one of claims 1 to 3.

5. The manganese dry battery in accordance with claim 4, further comprising: a sealing member having an aperture for fitting said positive electrode current collector, and polybutene placed as a sealant in the fitting portion between said positive electrode current collector and said sealing member.

**EVIDENCE APPENDIX**

No extrinsic evidence is relied upon in this appeal.

**RELATED PROCEEDINGS APPENDIX**

Appellants are unaware of any related proceedings.